

CENTER FOR DISEASE CONTROL

# Morbidity and Mortality



Vol. 23, No. 39

WEEKLY  
REPORT

For  
Week Ending  
September 28, 1974

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE PUBLIC HEALTH SERVICE

DATE OF RELEASE: OCTOBER 4, 1974 - ATLANTA, GEORGIA 30333

EPIDEMIOLOGIC NOTES AND REPORTS

**SALMONELLOSIS ON A CARIBBEAN CRUISE SHIP**

On August 13, 1974, representatives of the Royal Caribbean Cruise Line reported to CDC's Miami Quarantine Station the occurrence of 118 cases of gastrointestinal illness in passengers and crew aboard the M/S *Sun Viking* which sailed from Miami at 5:30 PM on August 3 on a 2-week Caribbean cruise. Two passengers had been hospitalized in San Juan, Puerto Rico, the first port-of-call, on August 6. Stool cultures obtained in San Juan from these 2 individuals and from a pastry man aboard the ship who had also experienced diarrhea had grown salmonella group D organisms. Two of these 3 isolates were later sent to CDC and identified as *Salmonella enteritidis*.

A questionnaire survey of passengers and crew was conducted on August 15 and 16, at which time there were 787

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passengers and 319 crew members aboard. Questionnaires were returned by 751 (95%) passengers and 298 crew members (93%). A case of gastrointestinal illness in passengers was defined as the occurrence of loose or watery bowel movements alone, abdominal cramps and 1 other gastrointestinal symptom, or abdominal cramps and either fever or headache. Because the investigators and some crew members could not

TABLE I. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES  
(Cumulative totals include revised and delayed reports through previous weeks)

DISEASE	WEEK ENDING		MEDIAN 1969-1973	CUMULATIVE, FIRST 39 WEEKS		
	September 28, 1974	September 29, 1973		1974	1973	MEDIAN 1969-1973
Aseptic meningitis	86	204	194	2,251	3,437	3,437
Brucellosis	6	4	4	127	143	148
Chickenpox	319	272	—	100,264	145,751	—
Diphtheria	6	16	9	189	143	126
Encephalitis:						
Primary: Arthropod-borne and unspecified	27	36	55	743	1,101	1,095
Post-Infectious	2	6	3	201	228	251
Hepatitis, Viral:						
Type B	221	205	167	7,261	6,028	6,028
Type A	748	1,264	1,149	31,408	38,277	41,093
Type unspecified	134	—	—	6,190	—	—
Malaria	6	5	44	172	184	2,184
Measles (rubeola)	83	75	153	20,073	24,371	27,210
Meningococcal infections, total	13	12	18	1,021	1,084	1,805
Civilian	13	12	17	995	1,060	1,611
Military	—	—	1	26	24	193
Mumps	296	428	530	45,117	56,285	69,241
Pertussis	40	—	—	1,283	—	—
Rubella (German measles)	147	84	243	10,213	26,191	39,040
Tetanus	1	3	4	68	68	89
Tuberculosis, new active	599	697	—	22,967	23,589	—
Tularemia	2	2	4	115	129	116
Typhoid fever	17	18	14	308	526	267
Typhus, tick-borne (Rky. Mt. spotted fever)	15	15	8	705	577	404
Venereal Diseases:						
Gonorrhea	21,177	18,410	—	679,681	633,362	—
Syphilis, primary and secondary	580	495	—	18,720	18,641	—
Rabies in animals	80	48	60	2,220	2,696	2,695

TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax:	2	Poliomyelitis, total:	5
Botulism: Calif. 1	14	Paralytic:	5
Congenital rubella syndrome: Calif. 1	42	Psittacosis: Calif. 1, Fla. 3, Mo. 1, N.Y. Ups. 1	147
Leprosy: N.Y. Ups. 1	79	Rabies in man:	—
Leptospirosis:	29	Trichinosis:	68
Plague:	2	Typhus, murine:	20

**SALMONELLOSIS – Continued**

communicate in any common language, a case of illness in a crew member was defined simply as the occurrence of diarrhea.

Of the 695 passengers who embarked in Miami and returned questionnaires, 274 (39%) became ill. In contrast, only 3 of the 54 passengers (6%) who boarded the ship in Venezuela on August 12 had any gastrointestinal illness. The difference was significant ( $X^2 = 23.23$ ,  $p < .001$ ). Forty-one of 298 crew members (14%) had diarrhea between August 3 and 15. The attack rate for crew was significantly lower than for passengers ( $X^2 = 52.74$ ,  $p < .001$ ). Ten passengers were hospitalized aboard ship; 9 of them were treated with intravenous fluids, and none received antibiotics. Two of these 10 passengers were subsequently hospitalized ashore. No deaths occurred.

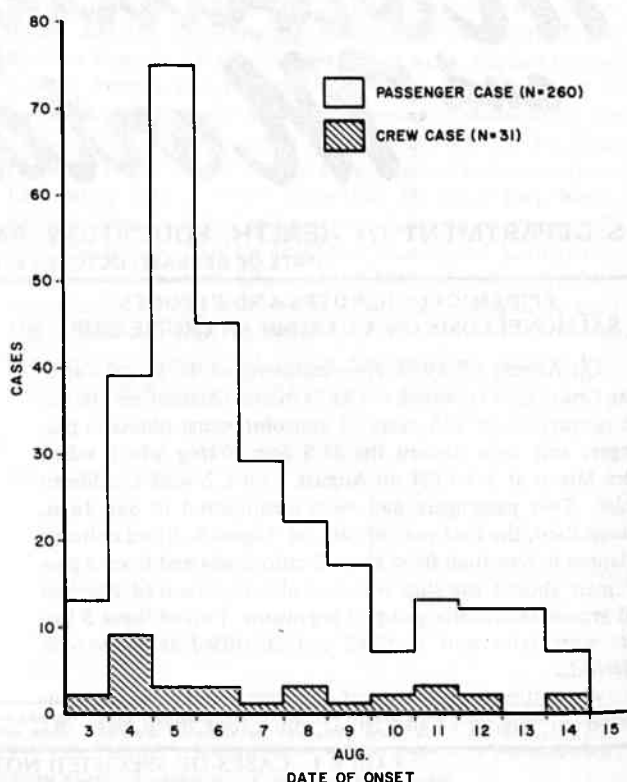
Symptoms most frequently reported by ill passengers were diarrhea, abdominal cramps, and headache (Table 1). Fever (temperature  $> 100^\circ\text{F}$ ) was documented in 18 of the 23 passengers on whom temperatures were recorded. The median duration of illness in passengers was 4 days. The epidemic curve, shown in Figure 1, is compatible with an explosive common-source outbreak which occurred prior to arrival at the first port-of-call, San Juan, on August 6.

*S. enteritidis* was isolated from rectal cultures obtained from 50 of 71 ill passengers (70%) and 23 of 42 non-ill passengers (55%) who boarded the ship in Miami. Rectal cultures from 6 of 22 ill (27%) and 6 of 47 (13%) non-ill crew members were also positive for *S. enteritidis*. Food handlers were no more likely to have positive cultures than other crew members. In addition, *Salmonella javiana* was isolated from 1 passenger and 1 crew member, and *Salmonella eimsbuettel* was isolated from 1 crew member. Eighty-three environmental swabs and 23 food specimens were negative for salmonella organisms.

Epidemiologic investigation revealed that passenger cases did not cluster in any part of the ship. Eating at the midnight buffet on either the first or second night of the cruise was not associated with illness. Because adequate food consumption histories could not be obtained on the ship's return to Miami, a random sample of ill culture-positive passengers and 18 of 19 culture-negative passengers who did not experience gastrointestinal illness during the cruise were interviewed by telephone after the cruise to determine the risk of illness associated with eating certain foods served during the first 2 days of the cruise. None of the food items could be significantly statistically associated with illness.

Attack rates did not differ significantly between crew members who ate food from the passenger galley and those

Figure 1  
GASTROINTESTINAL ILLNESS, BY DATE OF ONSET  
M/S SUN VIKING – AUGUST 3-15, 1974



who ate food prepared in the crew galley. An inspection of the passenger and crew galleys revealed in general an adequate sanitary environment. However, several refrigerators had elevated temperatures of 48-58°F. Some counter tops, mixing utensils, and knives were not clean. In addition, raw chicken was stored in a refrigerator that also held cooked meats.

Attack rates could not be significantly statistically correlated with the amount of water or of beverages containing ice consumed by passengers or crew during the cruise.

Potable water is disinfected aboard the ship by ultra-violet light. In addition, prior to and at the time of the outbreak, water in the potable-water tanks was routinely batch chlorinated each week; batch chlorination was performed during the cruise on August 7 and 14. Water cultures from "raw" (not yet treated on board) and potable-water tanks and the distribution system revealed no coliform contamination. However, 1 of 5 water samples obtained from the potable-water distribution system on August 16 grew *S. enteritidis*. The positive sample was obtained from the water tap in the sink in the chief engineer's bathroom, which was located at the furthest peripheral point in the potable water distribution system. The steward responsible for cleaning the cabin had experienced diarrhea, which began on August 4 and lasted 3 days. A rectal culture obtained from this steward on August 16 yielded *S. enteritidis*. Subsequent investigation revealed no evidence of cross-connections between the potable water and sewage systems.

(Continued on page 339)

Table 1  
Symptoms of Passengers with Gastrointestinal Illness

Symptom	Number Responding	Respondents with Symptom	
		Number	Percent
Diarrhea	274	256	93
Abdominal cramps	271	206	76
Headache	273	171	63
Chills	273	143	52
Nausea	271	142	52
Fever	264	126	48
Vomiting	272	71	26
Tenesmus	271	46	17
Blood in stool	273	14	5

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES  
FOR WEEKS ENDING SEPTEMBER 28, 1974 AND SEPTEMBER 29, 1973 (39th WEEK)

AREA	ASEPTIC MENIN- GITIS	BRUCELL- LOSIS	CHICKEN- POX	DIPHTHERIA		ENCEPHALITIS			HEPATITIS, VIRAL			MALARIA	
						Primary: Arthropod- borne and Unspecified		Post In- fectious	Type B	Type A	Type Unspecified		
	1974	1974	1974	1974	Cum. 1974	1974	1973	1974	1974	1974	1974	1974	Cum. 1974
UNITED STATES	86	6	319	6	189	27	36	2	221	748	134	6	172
NEW ENGLAND	7	-	27	-	-	-	1	-	5	35	17	-	8
Maine *	-	-	-	-	-	-	-	-	-	2	3	-	-
New Hampshire	1	-	-	-	-	-	-	-	-	1	-	-	-
Vermont	3	-	-	-	-	-	-	-	-	1	-	-	-
Massachusetts	2	-	16	-	-	-	-	-	1	10	14	-	2
Rhode Island	-	-	2	-	-	-	-	-	1	12	-	-	3
Connecticut	1	-	9	-	-	-	1	-	3	9	-	-	3
MIDDLE ATLANTIC	10	-	23	-	1	5	6	1	43	84	19	3	32
Upstate New York	2	-	2	-	-	-	4	-	3	18	1	2	12
New York City	-	-	20	-	-	-	2	-	8	19	-	-	11
New Jersey	6	-	NN	-	-	1	-	-	13	23	17	-	4
Pennsylvania	2	-	1	-	1	4	-	1	19	24	1	1	5
EAST NORTH CENTRAL	12	-	125	-	2	9	10	-	29	88	10	2	15
Ohio	4	-	11	-	1	7	6	-	5	19	-	-	6
Indiana	2	-	8	-	-	-	-	-	-	9	-	-	-
Illinois	1	-	-	-	1	-	1	-	11	-	2	-	2
Michigan	5	-	28	-	-	2	3	-	11	52	6	2	6
Wisconsin	-	-	78	-	-	-	-	-	2	8	2	-	1
WEST NORTH CENTRAL	3	1	53	-	-	3	2	-	15	31	21	-	4
Minnesota	2	-	8	-	-	3	-	-	4	14	-	-	1
Iowa *	-	1	35	-	-	-	1	-	1	-	2	-	1
Missouri	1	-	1	-	-	-	-	-	9	9	19	-	1
North Dakota	-	-	-	-	-	-	-	-	-	2	-	-	-
South Dakota	-	-	4	-	-	-	-	-	-	-	-	-	1
Nebraska	-	-	-	-	-	-	-	-	1	2	-	-	-
Kansas	-	-	5	-	-	-	1	-	-	4	-	-	-
SOUTH ATLANTIC	16	3	16	-	1	1	3	1	26	141	18	-	25
Delaware	-	-	1	-	-	-	-	-	-	2	-	-	-
Maryland	-	-	-	-	-	-	-	-	3	13	3	-	3
District of Columbia	-	-	-	-	-	-	-	-	-	-	-	-	4
Virginia *	5	3	-	-	-	1	2	-	7	17	1	-	6
West Virginia	-	-	12	-	-	-	-	-	-	1	1	-	-
North Carolina	2	-	NN	-	1	-	-	1	2	26	-	-	4
South Carolina	2	-	3	-	-	-	-	-	3	13	2	-	-
Georgia	-	-	-	-	-	-	1	-	-	21	-	-	1
Florida	7	-	-	-	-	-	-	-	11	48	11	-	7
EAST SOUTH CENTRAL	2	-	3	-	-	3	3	-	12	88	1	-	7
Kentucky *	1	-	3	-	-	-	-	-	2	27	-	-	4
Tennessee	-	-	NN	-	-	-	1	-	6	46	1	-	1
Alabama	-	-	-	-	-	-	-	-	1	7	-	-	-
Mississippi	1	-	-	-	-	3	2	-	3	8	-	-	2
WEST SOUTH CENTRAL	12	1	24	-	9	-	5	-	10	92	2	-	10
Arkansas	-	-	1	-	-	-	-	-	-	9	-	-	1
Louisiana	-	-	NN	-	-	-	-	-	2	6	2	-	1
Oklahoma	1	1	4	-	-	-	2	-	-	10	-	-	3
Texas	11	-	19	-	9	-	3	-	8	67	-	-	5
MOUNTAIN	-	1	7	-	30	-	-	-	6	39	16	-	9
Montana	-	-	-	-	-	-	-	-	-	5	-	-	-
Idaho	-	-	-	-	-	-	-	-	-	2	1	-	-
Wyoming	-	-	-	-	-	-	-	-	-	-	1	-	-
Colorado	-	-	1	-	-	-	-	-	3	3	6	-	5
New Mexico	-	1	-	-	12	-	-	-	1	7	2	-	2
Arizona	-	-	-	-	18	-	-	-	1	8	1	-	-
Utah	-	-	3	-	-	-	-	-	1	3	5	-	1
Nevada	-	-	3	-	-	-	-	-	-	11	-	-	1
PACIFIC	24	-	41	6	146	6	6	-	75	150	30	1	62
Washington	3	-	40	6	135	1	-	-	4	14	8	-	-
Oregon	1	-	-	-	-	-	-	-	10	11	5	-	2
California	20	-	-	-	7	5	6	-	50	122	17	1	58
Alaska	-	-	-	-	4	-	-	-	2	-	-	-	-
Hawaii	-	-	1	-	-	-	-	-	9	3	-	-	2
Guam *	-	-	-	-	-	-	-	-	-	-	-	-	2
Puerto Rico	-	-	10	-	-	-	-	-	-	-	13	-	1
Virgin Islands	-	-	1	-	-	-	-	-	-	-	-	-	-

\*Delayed reports: Chickenpox: Me. 6, Guam 7  
Hepatitis B: Iowa 2, Ky. 1, Guam 1

Hepatitis A: Me. 2, Iowa delete 1  
Va. delete 1, Ky. delete 1, Guam 10  
Hepatitis Unspecified: Va. delete 3

## Morbidity and Mortality Weekly Report

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES  
FOR WEEKS ENDING SEPTEMBER 28, 1974 AND SEPTEMBER 29, 1973 (39th WEEK) — Continued

AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS, TOTAL			MUMPS		PERTUSSIS	RUBELLA		TETANUS
	1974	Cumulative		1974	Cumulative		1974	Cum. 1974	1974	1974	Cum. 1974	Cum. 1974
		1974	1973		1974	1973						
UNITED STATES	83	20,073	24,371	13	1,021	1,084	296	45,117	40	147	10,213	68
NEW ENGLAND	2	924	7,378	—	54	46	20	5,947	3	6	986	1
Maine *	—	43	67	—	2	1	—	789	—	—	282	—
New Hampshire *	—	199	857	—	12	6	—	281	—	1	17	1
Vermont	—	57	119	—	2	3	—	28	—	1	22	—
Massachusetts	2	389	3,926	—	17	12	4	976	—	—	338	—
Rhode Island	—	59	605	—	7	3	13	2,449	—	—	19	—
Connecticut	—	177	1,804	—	14	21	3	1,424	3	4	308	—
MIDDLE ATLANTIC	6	8,041	2,491	2	152	148	27	3,616	5	7	1,087	6
Upstate New York	1	950	803	—	56	52	7	881	4	2	247	2
New York City	3	600	911	1	34	29	16	651	1	—	148	1
New Jersey	1	5,528	421	1	44	36	3	660	—	3	450	2
Pennsylvania	1	963	356	—	18	31	1	1,424	—	2	242	1
EAST NORTH CENTRAL	50	7,784	8,554	—	129	140	79	12,892	8	65	3,368	9
Ohio *	1	3,045	284	—	51	56	9	3,146	—	10	515	2
Indiana	3	240	644	—	13	4	—	989	—	9	577	—
Illinois	7	2,042	2,072	—	10	24	11	1,129	4	8	532	3
Michigan	18	1,950	4,378	—	39	41	25	5,461	3	11	1,211	3
Wisconsin	21	507	1,176	—	16	15	34	2,167	1	27	533	1
WEST NORTH CENTRAL	4	691	442	—	73	81	26	2,751	2	1	219	11
Minnesota	—	83	21	—	24	8	—	41	—	—	13	1
Iowa	—	134	277	—	13	19	15	1,670	—	—	15	1
Missouri	1	263	53	—	17	32	3	389	1	1	37	3
North Dakota	—	28	58	—	3	3	3	38	—	—	15	3
South Dakota	—	27	—	—	3	4	—	2	—	—	26	—
Nebraska	—	2	6	—	3	7	1	82	1	—	6	—
Kansas	3	154	27	—	10	8	4	529	—	—	107	3
SOUTH ATLANTIC	8	556	1,228	3	207	187	32	5,484	2	22	1,212	18
Delaware	1	10	8	—	5	1	2	94	—	2	29	—
Maryland	—	24	12	—	22	25	3	112	—	—	5	—
District of Columbia	—	3	6	—	1	4	—	50	—	—	4	—
Virginia	1	36	419	2	34	36	7	572	2	1	45	3
West Virginia	4	205	214	—	7	5	8	2,947	—	5	282	1
North Carolina	—	5	4	—	43	39	NN	NN	—	—	54	3
South Carolina *	2	51	60	—	16	12	3	115	—	13	622	4
Georgia	—	4	152	—	8	22	—	1	—	—	3	1
Florida	—	218	353	1	71	43	9	1,593	—	1	168	6
EAST SOUTH CENTRAL	3	226	606	1	101	99	22	5,601	4	9	591	3
Kentucky	3	160	372	1	39	34	5	2,233	—	2	209	—
Tennessee	—	35	165	—	45	40	12	2,468	2	7	301	1
Alabama	—	18	12	—	10	15	4	527	1	—	62	—
Mississippi	—	13	57	—	7	10	1	373	1	—	19	2
WEST SOUTH CENTRAL	3	207	691	2	164	166	36	3,224	2	6	388	7
Arkansas	1	12	69	—	12	13	3	133	—	—	26	—
Louisiana	—	13	84	1	36	39	—	221	—	2	82	3
Oklahoma	—	27	55	—	17	29	1	369	—	—	47	1
Texas	2	155	483	1	99	85	32	2,501	2	4	233	3
MOUNTAIN	6	744	727	4	35	34	4	1,060	—	5	413	—
Montana	—	373	17	—	1	7	—	176	—	—	66	—
Idaho *	—	51	255	—	2	4	—	157	—	—	14	—
Wyoming	—	1	81	—	3	—	—	10	—	—	—	—
Colorado	—	30	105	—	8	11	4	514	—	—	158	—
New Mexico	—	61	121	1	3	3	—	178	—	5	124	—
Arizona	—	16	19	1	7	5	—	—	—	—	—	—
Utah	6	13	128	2	8	2	—	20	—	—	18	—
Nevada	—	199	1	—	3	2	—	5	—	—	33	—
PACIFIC	1	900	2,254	1	106	183	50	4,542	14	26	1,949	13
Washington	—	64	1,014	—	12	20	16	1,558	4	14	366	1
Oregon	—	—	460	—	13	13	4	784	1	2	221	1
California	1	770	696	1	75	144	29	2,030	9	10	1,345	11
Alaska	—	—	65	—	3	6	1	110	—	—	—	—
Hawaii	—	66	19	—	3	—	—	60	—	—	17	—
Guam *	—	15	50	—	1	—	—	361	—	—	6	—
Puerto Rico *	3	598	1,845	—	6	8	10	984	—	—	29	4
Virgin Islands	3	28	1	—	—	—	1	33	—	—	—	1

\*Delayed reports: Measles: N.H. 1, P. R. 3  
Meningococcal infection: Ohio delete 1  
Mumps: N.H. 1, Guam 3

Rubella: Me. 1, Idaho delete 1  
Tetanus: S.C. 3

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES  
FOR WEEKS ENDING SEPTEMBER 28, 1974 AND SEPTEMBER 29, 1973 (39th WEEK) — Continued

AREA	TUBERCULOSIS (New Active)		TULA- REMIA	TYPHOID FEVER		TYPHUS-FEVER TICK-BORNE (Rky. Mt. spotted fever)		VENEREAL DISEASES						RABIES IN ANIMALS
	1974	Cum. 1974	Cum. 1974	1974	Cum. 1974	1974	Cum. 1974	GONORRHEA		SYPHILIS (Pri. & Sec.)		Cum. 1974		
								1974	Cumulative	1974	Cumulative			
								1974	1973	1974	1973			
UNITED STATES	599	22,967	115	17	308	15	705	21,177	679,681	633,362	580	18,720	18,641	2,220
NEW ENGLAND	36	955	—	5	13	—	8	629	17,869	16,297	19	380	501	22
Maine	4	75	—	—	1	—	—	32	1,465	980	7	33	21	2
New Hampshire	1	22	—	—	1	—	—	28	602	581	—	9	6	3
Vermont	—	17	—	—	—	—	—	16	483	277	3	5	16	1
Massachusetts	13	518	—	4	7	—	6	323	8,166	7,356	6	157	226	4
Rhode Island	3	88	—	—	2	—	2	72	1,608	1,669	1	16	14	4
Connecticut	15	235	—	1	2	—	—	158	5,545	5,434	2	160	218	8
MIDDLE ATLANTIC	115	4,171	2	3	50	1	61	2,025	81,421	86,621	115	4,051	4,126	58
Upstate New York	34	609	2	—	12	—	27	385	15,322	15,328	24	379	275	22
New York City	31	1,597	—	2	27	1	3	945	35,282	40,022	55	2,338	2,518	—
New Jersey	17	785	—	—	9	—	4	245	11,195	12,344	20	655	735	21
Pennsylvania	33	1,180	—	1	2	—	27	450	19,622	18,927	16	679	598	15
EAST NORTH CENTRAL	83	3,122	6	3	30	1	24	3,833	106,614	95,673	41	1,604	1,716	166
Ohio	27	828	—	—	5	—	16	1,325	28,244	23,161	4	226	209	26
Indiana	13	457	—	1	4	—	1	412	10,364	8,771	2	142	220	12
Illinois	19	900	3	1	12	—	6	922	33,666	33,579	23	842	867	35
Michigan	24	859	—	1	7	1	1	836	23,773	22,459	8	312	361	3
Wisconsin	—	78	3	—	2	—	—	338	10,567	7,703	4	82	59	90
WEST NORTH CENTRAL	19	859	19	—	10	—	17	1,403	35,235	32,571	19	470	279	577
Minnesota	2	140	—	—	4	—	—	64	7,983	6,634	1	62	77	208
Iowa	4	90	—	—	2	—	1	563	4,650	3,762	7	31	46	106
Missouri	6	410	14	—	2	—	10	391	11,336	11,197	9	323	122	30
North Dakota	1	24	2	—	—	—	—	14	534	542	—	3	2	89
South Dakota	—	42	3	—	—	—	1	47	1,707	1,633	—	2	5	91
Nebraska	2	37	—	—	—	—	—	138	3,026	3,630	1	10	8	4
Kansas	4	116	—	—	2	—	5	186	5,999	5,173	1	39	19	49
SOUTH ATLANTIC	116	4,839	10	3	47	5	402	5,104	172,432	155,025	182	5,912	5,440	301
Delaware	2	81	—	—	—	—	10	96	2,338	2,314	3	64	72	1
Maryland	28	636	1	—	6	2	47	650	17,980	13,323	29	602	529	24
District of Columbia	6	279	—	—	1	—	—	346	12,548	13,206	9	495	663	—
Virginia	11	607	4	1	3	2	135	536	15,195	15,540	19	613	605	80
West Virginia	10	229	—	1	12	—	4	50	2,003	2,298	1	14	18	27
North Carolina	15	748	3	—	3	—	103	616	23,139	23,053	22	723	452	37
South Carolina	—	454	—	—	4	—	53	397	17,624	16,021	21	635	858	3
Georgia	17	685	2	—	3	1	48	906	35,691	29,771	13	653	794	98
Florida	27	1,120	—	1	15	—	2	1,507	45,914	39,499	65	2,113	1,449	31
EAST SOUTH CENTRAL	54	2,039	12	—	44	5	102	1,718	56,847	51,353	26	952	1,020	200
Kentucky	7	435	2	—	14	1	14	225	6,981	6,229	10	222	271	117
Tennessee	13	642	6	—	22	3	64	724	22,625	19,808	8	365	347	50
Alabama	27	615	2	—	4	—	10	596	15,773	14,541	2	182	138	30
Mississippi	7	347	2	—	4	1	14	173	11,468	10,775	6	183	264	3
WEST SOUTH CENTRAL	82	2,685	49	—	21	3	82	2,962	90,560	81,412	54	1,763	2,082	473
Arkansas	9	311	28	—	1	—	10	541	8,866	9,847	1	78	108	60
Louisiana *	14	387	2	—	8	—	1	566	18,322	17,541	18	474	640	21
Oklahoma *	—	224	14	—	2	3	59	225	8,343	7,483	9	109	135	126
Texas	59	1,763	5	—	10	—	12	1,630	55,029	46,541	26	1,102	1,199	266
MOUNTAIN	13	722	11	—	17	—	6	871	25,921	21,751	17	435	455	144
Montana	—	59	—	—	—	—	1	38	1,419	1,257	—	3	3	6
Idaho	—	24	—	—	—	—	1	39	1,355	1,499	—	9	10	—
Wyoming	2	17	5	—	3	—	1	17	524	380	—	6	24	11
Colorado	—	137	—	—	—	—	1	336	7,277	5,658	4	99	160	27
New Mexico	—	143	2	—	3	—	1	124	3,887	3,826	6	67	65	60
Arizona	8	259	—	—	8	—	—	174	7,477	6,285	6	165	125	39
Utah	2	35	4	—	—	—	1	54	1,465	1,214	—	14	12	1
Nevada	1	48	—	—	3	—	—	89	2,517	1,632	1	72	56	—
PACIFIC	81	3,575	6	3	76	—	3	2,632	92,782	92,659	107	3,153	3,022	279
Washington	2	254	—	—	13	—	1	221	8,583	8,752	—	53	119	—
Oregon	2	152	1	1	1	—	2	370	8,412	8,210	1	68	47	9
California	62	2,810	5	2	58	—	—	1,819	71,664	71,749	105	2,996	2,778	261
Alaska	—	75	—	—	2	—	—	180	2,176	2,224	—	11	16	9
Hawaii	15	284	—	—	2	—	—	42	1,947	1,724	1	25	62	—
Guam *	—	28	—	—	—	—	—	—	239	322	—	3	3	—
Puerto Rico	8	405	—	—	4	—	—	82	2,405	3,222	26	662	545	46
Virgin Islands	—	3	—	—	—	—	—	14	232	185	7	41	18	—

\*Delayed reports: Gonorrhea: La. delete 2, Guam 6  
Rabies: Okla. delete 1

Week No.  
39

TABLE IV. DEATHS IN 121 UNITED STATES CITIES FOR WEEK ENDING SEPTEMBER 28, 1974

(By place of occurrence and week of filing certificate. Excludes fetal deaths)

Area	All Causes					Pneumonia and Influenza All Ages	Area	All Causes					Pneumonia and Influenza All Ages
	All Ages	65 years and over	45-64 years	25-44 years	Under 1 year			All Ages	65 years and over	45-64 years	25-44 years	Under 1 year	
<b>NEW ENGLAND</b>	583	354	153	32	27	29	<b>SOUTH ATLANTIC</b>	1,201	620	391	102	38	46
Boston, Mass.	198	116	51	8	14	12	Atlanta, Ga.	120	64	37	14	2	4
Bridgeport, Conn.	35	22	7	4	1	5	Baltimore, Md.	251	115	93	20	10	7
Cambridge, Mass.	31	24	4	1	1	2	Charlotte, N. C.	68	31	22	8	1	—
Fall River, Mass.	25	17	8	—	—	—	Jacksonville, Fla.	98	51	29	9	5	—
Hartford, Conn.	38	22	10	3	2	—	Miami, Fla.	113	59	34	11	4	4
Lowell, Mass.	25	14	8	3	—	2	Norfolk, Va.	67	32	29	1	3	5
Lynn, Mass.	10	5	5	—	—	1	Richmond, Va.	84	49	26	7	—	8
New Bedford, Mass.	19	11	6	1	—	1	Savannah, Ga.	43	25	11	3	3	2
New Haven, Conn.	35	21	11	—	2	—	St. Petersburg, Fla.	72	55	15	2	—	9
Providence, R. I.	52	27	16	4	3	4	Tampa, Fla.	75	45	20	6	3	3
Somerville, Mass.	10	5	4	1	—	1	Washington, D. C.	165	61	66	20	6	2
Springfield, Mass.	29	18	7	2	2	1	Wilmington, Del.	45	33	9	1	1	2
Waterbury, Conn.	27	21	4	1	—	—							
Worcester, Mass.	49	31	12	4	2	—							
<b>MIDDLE ATLANTIC</b>	3,050	1,845	790	195	113	116	<b>EAST SOUTH CENTRAL</b>	752	456	190	54	20	27
Albany, N. Y.	61	36	17	3	4	2	Birmingham, Ala.	117	73	28	7	3	2
Allentown, Pa.	23	13	6	4	—	2	Chattanooga, Tenn.	60	40	16	1	—	4
Buffalo, N. Y.	129	74	37	9	5	7	Knoxville, Tenn.	44	33	11	—	—	—
Camden, N. J.	31	12	17	2	—	1	Louisville, Ky.	130	84	30	10	4	10
Elizabeth, N. J.	28	20	4	1	1	—	Memphis, Tenn.	177	105	45	15	2	5
Erie, Pa.	37	21	13	—	1	3	Mobile, Ala.	56	28	16	4	4	1
Jersey City, N. J.	65	43	13	4	5	1	Montgomery, Ala.	35	20	7	5	—	—
Newark, N. J.	62	31	17	9	4	6	Nashville, Tenn.	133	73	37	12	7	5
New York City, N. Y.	1,360	843	336	83	46	49	<b>WEST SOUTH CENTRAL</b>	1,067	568	312	76	40	30
Paterson, N. J.	40	23	10	6	—	2	Austin, Tex.	55	30	11	2	8	2
Philadelphia, Pa.	628	355	168	51	30	7	Baton Rouge, La.	23	11	5	3	2	1
Pittsburgh, Pa.	191	102	60	13	8	16	Corpus Christi, Tex.	39	17	12	5	3	—
Reading, Pa.	38	27	8	2	—	2	Dallas, Tex.	188	93	63	12	5	7
Rochester, N. Y.	117	78	27	2	3	4	El Paso, Tex.	40	24	10	3	1	2
Schenectady, N. Y.	22	17	3	1	—	—	Fort Worth, Tex.	81	45	21	7	3	—
Scranton, Pa.	37	29	6	2	—	3	Houston, Tex.	198	100	61	15	7	5
Syracuse, N. Y.	96	63	28	1	4	1	Little Rock, Ark.	65	35	21	2	2	2
Trenton, N. J.	24	17	7	—	—	1	New Orleans, La.	141	74	44	12	2	—
Utica, N. Y.	24	18	4	—	1	6	San Antonio, Tex.	137	72	43	10	4	4
Yonkers, N. Y.	37	23	9	2	1	3	Shreveport, La.	38	28	6	2	1	2
							Tulsa, Okla. *	62	39	15	3	2	5
<b>EAST NORTH CENTRAL</b>	2,388	1,320	706	159	103	50	<b>MOUNTAIN</b>	488	266	117	39	36	19
Akron, Ohio	55	32	17	2	3	—	Albuquerque, N. Mex.	48	25	14	4	3	5
Canton, Ohio	47	26	12	4	5	—	Colorado Springs, Colo.	41	19	10	2	6	8
Chicago, Ill.	626	314	197	52	38	8	Denver, Colo.	116	55	29	12	9	2
Cincinnati, Ohio	117	68	35	4	3	2	Las Vegas, Nev.	36	15	15	3	2	2
Cleveland, Ohio	177	88	53	20	4	3	Ogden, Utah	18	11	4	2	—	—
Columbus, Ohio	139	69	46	8	8	6	Phoenix, Ariz.	109	69	25	5	5	—
Dayton, Ohio	111	62	35	9	1	2	Pueblo, Colo.	15	9	5	1	—	1
Detroit, Mich.	301	160	90	20	10	4	Salt Lake City, Utah	54	27	9	3	10	1
Evansville, Ind.	51	35	11	4	1	7	Tucson, Ariz.	51	36	6	7	1	—
Fort Wayne, Ind.	63	39	15	4	1	5							
Gary, Ind.	32	18	9	1	4	—	<b>PACIFIC</b>	1,574	940	422	106	52	45
Grand Rapids, Mich.	49	25	16	4	2	1	Berkeley, Calif.	12	8	2	2	—	—
Indianapolis, Ind.	149	91	42	8	5	2	Fresno, Calif.	58	27	16	6	4	2
Madison, Wis.	41	18	13	2	4	5	Glendale, Calif.	19	16	3	—	—	—
Milwaukee, Wis.	137	95	32	7	3	1	Honolulu, Hawaii *	50	25	15	4	3	1
Peoria, Ill.	53	31	12	3	2	—	Long Beach, Calif.	135	79	38	11	—	3
Rockford, Ill.	38	25	10	1	2	2	Los Angeles, Calif.	446	251	124	40	15	14
South Bend, Ind.	44	21	17	3	2	1	Oakland, Calif.	77	51	18	3	4	1
Toledo, Ohio	96	63	26	2	2	1	Pasadena, Calif.	32	20	10	1	1	—
Youngstown, Ohio	62	40	18	1	3	—	Portland, Oreg.	134	92	28	2	9	9
							Sacramento, Calif.	65	35	24	1	3	3
<b>WEST NORTHCENTRAL</b>	760	473	189	33	44	29	San Diego, Calif.	111	69	24	9	5	—
Des Moines, Iowa	61	39	17	1	4	3	San Francisco, Calif.	149	80	49	13	3	4
Duluth, Minn.	27	15	12	—	—	5	San Jose, Calif.	50	32	12	3	—	2
Kansas City, Kans.	32	12	8	2	8	2	Seattle, Wash.	146	103	32	6	3	—
Kansas City, Mo.	117	81	26	4	4	1	Spokane, Wash.	51	28	16	2	2	6
Lincoln, Nebr.	25	20	5	—	—	2	Tacoma, Wash.	39	24	11	3	—	—
Minneapolis, Minn.	101	57	28	4	7	4							
Omaha, Nebr.	80	54	20	3	1	2							
St. Louis, Mo.	187	114	38	16	13	3							
St. Paul, Minn.	81	50	23	1	4	2							
Wichita, Kans.	49	31	12	2	3	5							
<b>Total</b>	<b>11,863</b>	<b>6,842</b>	<b>3,270</b>	<b>796</b>	<b>473</b>	<b>391</b>							
<b>Expected Number</b>	<b>11,636</b>	<b>6,733</b>	<b>3,181</b>	<b>801</b>	<b>425</b>	<b>333</b>							

†Delayed report for week ending Sept. 21, 1974

\*Estimate based on average percent of divisional total



**SALMONELLOSIS – Continued**

Control measures consisted of disinfecting the galleys and all raw and potable water tanks, initiating the practice of batch chlorinating the raw water tanks at the time of bunkering and monitoring the free residual chlorine in the potable water distribution system daily. In addition, elevated refrigerator temperatures were lowered to the recommended 45°F, and company personnel were advised to store raw and cooked meats in separate refrigerators. Culture-positive food handlers were removed from duty until 3 consecutive negative cultures were obtained.

On 2 subsequent 2-week cruises, 4 and 1 cases of diarrhea, respectively, were reported in passengers and crew. This incidence is well within expected rates for 2-week Caribbean cruises (1).

(Reported by the Epidemiologic Services Laboratory Branch

and the Enteric Diseases Branch, Bacterial Diseases Division, and the Quarantine Division, Bureau of Epidemiology, CDC; and 2 EIS Officers.)

**Editorial Note**

The explosive common-source outbreak occurred aboard ship before it arrived at the first port-of-call. Epidemiologic investigation failed to clearly implicate either food or water. The isolation of *S. enteritidis* from a single rectal swab taken from 55% of 42 non-ill passengers cultured 11 days after the peak of the outbreak suggests that the majority of non-ill passengers may have also been exposed to a contaminated vehicle. The significance of the single isolation of *S. enteritidis* from water is unclear.

**Reference**

1. Survey of the incidence of gastrointestinal illness in cruise ship passengers. Morbidity and Mortality Weekly Rep 23:65-66, 16 Feb 1974

### INTERNATIONAL NOTES INFLUENZA – Worldwide

**New Zealand** (information dated July 27, 1974) – A regional influenza outbreak, which started in early July and reached a peak on July 24, has been reported in the Hawke's Bay Region (eastern area of the North Island), where 2 strains of a virus antigenically close to A/Port Chalmers/1/73 have been isolated. In the Wellington area, sporadic influenza cases have been observed, and 1 strain of a virus close to A/Port Chalmers/1/73 has also been isolated.

As of August 16, sporadic cases of influenza-like illness had been reported in Auckland. Three strains of virus A were isolated.

**Thailand** (information dated August 8, 1974) – Since June, a slight increase in the incidence of cases of influenza-like illness has been observed in Bangkok and its surroundings. Three strains of virus A have been isolated from patients.

**Singapore** (information dated July 31, 1974) – From mid-May to mid-July, an influenza epidemic was observed throughout the Republic of Singapore and, at its height, about 1,500 new cases occurred daily. A few fatalities were reported among the aged.

Seventy-nine influenza strains antigenically close to A/Port Chalmers/1/73 have been isolated. This variant has been present in Singapore since November 1973.

**Malaysia** (information dated September 13, 1974) – The World Health Organization Collaborating Centre for Reference and Research on Influenza, London, has indicated that 2 strains of virus A isolated during the epidemic reported on June 7 are antigenically close to A/Port Chalmers/1/73.

**Chile** (information dated July 31, 1974) – The epidemic which started at the end of May in the general population of Santiago ended in mid-July, after reaching its peak during the week June 17-23. The extent of the epidemic appears to have been moderate, and all age groups were affected.

Strains of virus A have been isolated, and evidence of infection with virus A was obtained from serological tests of several paired serum specimens.

**Uruguay** (information dated August 30, 1974) – In Montevideo, influenza infections associated with virus A have been occurring since early July, and outbreaks of influenza-like illness in the general population have been reported since the week ending August 16. Six strains of virus A were isolated during the second half of August.

(Reported by the World Health Organization: Weekly Epidemiological Record 49(32, 33, 34, 37, 39): 276, 280, 286, 312, 331, Aug-Sept 1974.)

**Editorial Note**

Influenza occurs in the United States every year; however, there is great variation in its incidence and geographic extent making accurate prediction extremely difficult. For this fall and winter in the United States the expected strain of influenza will likely be A/Port Chalmers/1/73, a strain similar to the previously prevalent A/England/42/72. To date no confirmed outbreaks of influenza have been reported to CDC.

Annual vaccination of the high-risk groups – the elderly (especially those over 65) and persons of all ages who have chronic diseases, such as heart disease, bronchopulmonary disease, renal disease, and metabolic disease – is strongly recommended regardless of the amount of influenza expected in any specific geographic area. In this way those at greatest risk will be provided the highest possible level of protection.

Influenza control through widespread vaccination of the general population is not currently a public health objective for several reasons: (1) the variable effectiveness and short-lived antibody levels with available influenza vaccines; (2) the relatively low attack rate of influenza in community outbreaks; and (3) the low frequency of serious complications from the disease in healthy people in the general population.

**EPIDEMIOLOGIC NOTES AND REPORTS****ANIMAL ANTHRAX ASSOCIATED WITH PACK SADDLE PADS – Washington**

On September 2 and 3, 38 animals at a private game farm near Sequim, Washington, died of probable anthrax. By September 9, a total of 42 deaths had occurred among 125 carnivores at the farm. Most of the deaths were in cou-

gars and other large felines. At necropsy, 2 cougars had pharyngeal and cervical edema, splenomegaly, and multiple hemorrhages in lymph nodes and other organs. *Bacillus anthracis* was isolated from tissues of 2 cougars and 1 jaguar.

## ANTHRAX—Continued

On August 31, the large cats had been fed meat from a horse which had died suddenly the previous day. *B. anthracis* was subsequently isolated from a portion of the horse meat which remained at the game farm. Five days prior to death, the affected horse had returned from a pack trip to the Olympic Mountains. During the trip the horse had been severely bitten by flies, resulting in visible cutaneous bleeding. Several other horses which were less severely bitten did not become ill.

New pack saddle pads made of goat hair had been used for the first time during the trip. Samples obtained from 1 of these pads and from 8 other unused pads remaining at retail outlets were culture-positive for *B. anthracis*.

The saddle pads had been obtained from a California distributor who had purchased them from the Perforated Pad Company in Rhode Island. Interviews regarding the origin of the raw materials and manufacturing process revealed the following information. The saddle pads contain (a) coarse goat hair, (b) cashmere (fine goat hair), (c) fibrene blend, and (d) a quilted cotton duck or canvas cover on 1 side of the pad. The coarse goat hair was reportedly imported from Pakistan by a broker in New Jersey and is usually shipped directly to a plant in Massachusetts. There, the hair, fibrene material, and cashmere are incorporated into a hair felt pad. The cashmere, imported from Afghanistan, is obtained from a second Rhode Island firm. The hair felt manufactured by the Massachusetts firm is sold exclusively to the Perforated Pad Company, which completes the production of the pack saddle pads. Samples of the coarse goat hair, fibrene, cashmere, and hair felt pad from the Massachusetts firm, and hair felt pad from the Perforated Pad Company have been cultured. Hair felt pads from the Perforated Pad Company and the Massachusetts firm and cashmere obtained at the plant in Massachusetts were culture-positive for *B. anthracis*. Repeat cultures of coarse goat hair from the Massachusetts firm and cultures of cashmere scraps collected at the second

Rhode Island plant are being performed. Production of the saddle pads has been curtailed pending the results of the investigation.

(Reported by James W. Foster, D.V.M., Zoo Veterinarian, Woodland Park Zoological Garden, Seattle, Washington; E. Dennis Erickson, Ph.D., Washington State University, Pullman, Washington; Thieu Nghiem, M.D., Head, Epidemiology Section, Washington State Health Department; James Chin, M.D., State Epidemiologist, California State Health Department; Nicholas J. Fiumara, M.D., State Epidemiologist, Massachusetts Department of Public Health; John Lewis, M.D., Occupational Health Physician, Division of Occupational Hygiene, Massachusetts Department of Labor and Industries; Michael P. Hudgins, M.D., M.P.H., Acting State Epidemiologist, Rhode Island Department of Health; the Bacterial Zoonoses Branch, Bacterial Diseases Division, Bureau of Epidemiology, CDC; and 3 EIS Officers.)

## Editorial Note

Imported goat hair has been known to be frequently contaminated with *B. anthracis* since the late 1800s. In the period 1955-1968, contaminated goat hair was incriminated in 106 of 207 human anthrax cases reported in the United States (1). In recent years, the frequency of such cases has declined due to the use of human anthrax vaccine in high-risk employee groups and the decreasing industrial demand for goat hair.

Because animal anthrax has not been previously reported on the Olympic Peninsula of Washington, the probable source of infection for the horse was the contaminated saddle pad, and the probable route of infection was the insect bites. The infection would have gone undetected if meat from the horse had not been fed to the cats. No cases of human anthrax associated with the saddle pads have been documented. Persons possessing the implicated pads (Alaskan Hair Saddle Pad) are advised to destroy them, preferably by burning.

## Reference

1. Brachman PS: Anthrax. In Tice's Practice of Medicine. Vol. III. Hagerstown, Maryland, Harper and Row, 1970, p 1-15

The Morbidity and Mortality Weekly Report, circulation 39,000, is published by the Center for Disease Control, Atlanta, Ga.

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The data in this report are provisional, based on weekly telegraphs to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

In addition to the established procedures for reporting morbidity and mortality, the editor welcomes accounts of interesting cases, outbreaks, environmental hazards, or other public health problems of current interest to health officials.

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Atlanta, Georgia 30333

DHEW Publication No. (CDC) 75-8017

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